

**REMARKS**

The Official Action mailed October 27, 2004, has been received and its contents carefully noted. Filed concurrently herewith is a *Request for One Month Extension of Time*, which extends the shortened statutory period for response to February 27, 2005. Accordingly, the Applicants respectfully submit that this response is being timely filed.

The Applicants note with appreciation the consideration of the Information Disclosure Statement filed on August 13, 2003.

Claims 1-3 were pending in the present application prior to the above amendment. Claim 1 has been canceled. Accordingly, claims 2 and 3 are now pending in the present application, all of which are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 2 of the Official Action rejects claims 1-3 as obvious based on JP 53-002020 to Sato et al. Claim 1 has been canceled. With respect to claims 2 and 3, the Applicants respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole

would have suggested to those of ordinary skill in the art.” In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. The present invention is directed to a circuit removing AM neighboring interference in an AM receiver. The present invention’s AM neighboring interference removing circuit is unique in comprising first and second local oscillators, first and second multipliers, first, second and third low-pass filters and a subtractor, wherein a carrier frequency,  $f_c$  of an interference AM modulation wave causing neighboring interference and the oscillation frequencies ( $f_{p1}$ ,  $f_{p2}$ ) of the first and second oscillators satisfy the condition:  $f_{p1} > f_{p2}$ , and  $f_{p1} - f_c = f_c - f_{p2}$ , as recited, for example, in independent claim 1. Therefore, one objective of the present invention is that only a desired modulation wave is derived from a received AM signal wave with an interfering modulation wave being partially superposed upon the desired modulation wave by a simple arrangement comprising two local oscillators, two multipliers, three low-pass filters and one subtractor. For the reasons provided below, Sato does not teach or suggest at least the above-referenced features of the present invention.

The present invention is unique in selecting two oscillation frequencies (i.e.,  $f_{p1}$ ,  $f_{p2}$ ) that satisfy the condition:  $f_{p1} > f_{p2}$ , and  $f_{p1} - f_c = f_c - f_{p2}$ , with respect to the carrier frequency (i.e.,  $f_c$ ) of the interference AM modulation wave. The Official Action asserts that Sato teaches  $f_{p1} > f_{p2}$ , and  $f_{p1} - f_c = f_c - f_{p2}$  (pages 19, 23 and 24, Paper No. 8). The Applicants respectfully disagree and traverse the above-referenced assertion in the Official Action.

The above-referenced features related to selection of oscillation frequencies are neither taught nor suggested by Sato. Sato discloses that a received broadcast signal is converted in frequency into three frequency converted signals such that converted adjacent frequencies are shifted from each other by twice that of an inter-channel

frequency. However, such a condition for the frequency conversion of Sato is irrelevant to the selection of oscillation frequencies (as clearly recited in claims 2 and 3) as required by the present invention. Accordingly, the receiver of the present invention using local oscillators having specific oscillation frequencies used to convert in frequency the received modulation signal is distinguished from that of Sato.

Therefore, Sato does not teach or suggest selection of oscillation frequencies. Specifically, Sato does not teach or suggest selecting two oscillation frequencies (i.e.,  $fp1$ ,  $fp2$ ) that satisfy the condition:  $fp1 > fp2$ , and  $fp1 - fc = fc - fp2$ , with respect to the carrier frequency (i.e.,  $fc$ ) of the interference AM modulation wave. Since Sato does not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained.

Furthermore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Sato to achieve the claimed invention. MPEP § 2142 states that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden. While the Official Action relies on various teachings of the cited prior art to disclose aspects of the claimed invention and asserts that these aspects could be modified in the manner asserted in the Official Action, it is submitted that the Official Action does not adequately set forth why one of skill in the art would combine the references to achieve the features of the present invention.

The Official Action concedes that "the equivalence of Sato et al. to the present invention may not be immediately apparent" (pages 2-3, Paper No. 8). It appears that the Official Action has presented Figure E6 (page 13, Id.) in support of the rejection. It is noted, however, that Figure E6 was not provided in Sato. Rather, Figure E6 was the result of a lengthy discussion of Sato which spans from page 2 to page 13 of the Official Action. The Official Action has made numerous assertions regarding the disclosure of Sato and numerous modifications to Figure 2 of Sato in order to create the entirely new

Figure E6. For example, it appears that the Official Action has determined that “boxes 20H and 20L at the right of Figure E2 are not particularly relevant” (page 4, Id.). Also, the Official Action asserts that “one of ordinary skill in the art would recognize possible solutions ... to make the system of Sato et al. operable” (page 10, emphasis added, Id.) by providing “high-side injection at multipliers 11B and 15B (including low-pass filtering the multiplier outputs ...),” (Id.) that “one of ordinary skill in the art might also seek other solutions” (page 11, emphasis added, Id.), that “the spectrum of signal  $S_{OM}$  could [be] inverted by performing a high-side injection at mixer 10M” (pages 11-12, emphasis added, Id.), and that “this solution would also require forming signals  $S_{OL}$  and  $S_{OH}$  as difference frequencies instead of sum frequencies” (page 12, emphasis added, Id.). In providing Figure E6, the Official Action concedes that “the series of mixers and oscillators for generating the oscillation signals” from original Figure 2 have been “replaced with simple oscillators generating these signals directly” (page 13, Id.). The Official Action concludes that “it would have been obvious to one of ordinary skill in the art at the time the present invention was made to make either of the above-described modifications to the system and method of Sato et al. in order to produce a properly functioning embodiment of the invention” (page 16, Id.). The Applicants respectfully disagree.

As a general principal, the test for obviousness is not whether the references “might” or “could” have been combined or modified as asserted in the Official Action, but rather whether the references should have been. As noted in MPEP § 2143.01, “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis in original). Thus, it is respectfully submitted that the standard set forth in the Official Action is improper to support a finding of *prima facie* obviousness.

For example, there is no showing in Sato that teaches or suggests that an AM neighboring interference removing circuit comprising first and second local oscillators,

first and second multipliers, first, second and third low-pass filters and a subtractor are of any concern, or that these concerns could or should be solved by modifying Sato. Specifically, it is unclear how or why any alleged motivation discussed at pages 2-25, e.g. "in order to produce a properly functioning embodiment of the invention" (page 16), is relevant to an AM neighboring interference removing circuit comprising at least the above-referenced features of the present invention.

The present invention is distinguished from Sato in the circuit configuration, that is, the type and number of the components of the interference removing circuit. Sato is directed to a receiver; however, the circuit configuration in the receiver of Sato is fundamentally different from that of the present invention. In the circuit of Sato, many frequency converters each consisting of a local oscillator and a mixer are used to form converted composite signals  $S_{0M}$  and  $S_{0L}$ , and these composite signals are combined with a composite signal  $S_{0M}$  in reverse phase to cancel undesired signals (second and third converted broadcast waves). As seen from Figure 2 of Sato, the circuit configuration of Sato is extremely complex. In contrast, the present invention adopts a simple circuit configuration and is distinguished from Sato's adoption of an extremely complex circuit configuration. As such, it is unclear how or why one of ordinary skill in the art would have looked to Sato, which confronts some of the same issues as the present invention, and would have been motivated to change Sato from a complex circuit as shown in Figure 2 of Sato to that which is described by the claims of the present invention and described in the specification and drawings. For example, it is unclear how or why one of ordinary skill in the art would have been motivated to change the structure shown in Figure 2 of Sato to the structure shown in Figure 3 of the present application.

In the present application, it is respectfully submitted that the prior art of record, either alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to

why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Also, the Applicants wish to respectfully submit that in the corresponding Japanese application, Sato was cited by the Japanese Examiner; however, the Japanese Examiner granted a patent to the present invention as recited in claims which are identical with claims 2 and 3 of the present U.S. application. Accordingly, it is submitted that claims 2 and 3 are patentable over the disclosure of Sato.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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